

REMARKS

The present remarks and amendments are responsive to the Office Action mailed on 05/01/06. Claims 1-2, 4-9, 11-15, and 17-19 are pending in this application. An amendment was made to the background based on an inadvertent informality; in particular the insertion "(check this quotation for spelling)" is to be deleted from paragraph [00010] on page 4. Claims 3, 10, and 16 have been provisionally canceled by prior amendment. Claims 1, 4 and 14 have been amended in the present communication by striking the word type as suggested by the Examiner based on a 35 U.S.C. 112, second paragraph rejection. Finally, claims 1, 8 and 14 have been amended to clarify the present invention. Support for the amendments can be found inter alia, among the specification and original claims. No new matter has been added.

Accompanying this communication is a petition to extend the prosecution on this matter for three months and the appropriate fee. By the foregoing and the following remarks, Applicants respectfully submit that remaining pending claims 1-2, 4-9, 11-15, and 17-19 are now in condition for allowance and Applicants respectfully request allowance of such claims.

Discussion of the Office Action

In the Office Action of May 1, 2006 the Examiner rejected claims 1 and 14 under 35 U.S.C. §112, second paragraph for the addition of the word "type". Finally, claims 1-2, 4-9, 11-15, and 17-19 are rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Brooks et al. (U.S. Patent 6, 386, 108) and further in view of Wu et al. (U.S. Patent 6, 227, 114).

Discussion of the 35 U.S.C. §112 rejection of claims 1 and 14

As set forth above, claims 1 and 14 have been rejected under 35 U.S.C. §112, second paragraph by the addition of the word type.

In light of the amendments to 1, 4 and 14 as shown above, the rejections under 35 U.S.C. §112 of such claims have been overcome.

Discussion of the rejection of claims 1-2, 4-9, 11-15, and 17-19 under 35 U.S.C. §103(a)

As set forth above, claims 1-2, 4-9, 11-15, and 17-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Brooks (U.S. Patent 6, 386, 108) and further in view of Wu et al. (U.S. 6, 227, 114). Applicants respectfully traverse the rejection.

Under §MPEP 2142, as one of the prongs to establish a *prima facie* case of obviousness:

“The prior art reference (or references when combined) must teach or suggest all the claim limitations.”

Element 1 of amended independent claim 1 is as follows:

a plurality of capacitor discharge units, wherein each of said units further comprises: an optical receiver, an electrical storage capacitor, and an electrical bridge detonator, wherein each said electrical bridge type detonator can be initiated with less than about 50 mj of energy **at the end of about a 1 millisecond charging time window** and wherein each said electrical bridge detonator is operatively coupled to an explosive,....

Element 1 of amended independent claim 8 is as follows:

a plurality of capacitor discharge units, wherein each of said units further comprises: an optical receiver, an electrical storage capacitor, and a chip slapper, wherein each said chip slapper is operatively coupled to a shaped charge and wherein said chip slapper is capable of being initiated with less than about 50 mj of energy **at the end of about a 1 millisecond charging window,....**

Element 1 of amended independent claim 14 is as follows:

providing a plurality of capacitor discharge units, wherein each of said units further comprises: a fiber coupled optical receiver, an electrical storage capacitor and an electrical bridge ~~type~~ detonator, wherein each said electrical bridge type detonator is operatively coupled to a shaped charge and wherein each said electrical bridge ~~type~~ detonator includes a chip slapper capable of being initiated with less than 50 mj of energy **at the end of about a 1 millisecond charging window,....**

As shown bolded above for element 1 of each of independent claims 1, 8, and 14, such claims have been amended to include the limitations of an electrical bridge type detonator initiated with less than about 50 mj of energy at the end of about a 1 millisecond charging time window or a chip slapper capable of being initiated with less than 50 mj of energy at the end of about a 1 millisecond charging window.

Under §MPEP 2142, to establish a *prima facie* case of obviousness:

“The prior art reference (or references when combined) must teach or suggest all the claim limitations.”

Applicants respectfully submit that the references provided by the Examiner, i.e., Brooks et al (US 6,386,108 B1) and Wu et al (US 6,227,114 B1), do not alone or in combination teach all the claim limitations of Applicants’ amended claims as mandated under §MPEP 2142 to warrant a rejection based on a prima facie case of obviousness. Applicants support for the amendments can be found in the specification (see page 9, paragraph [00024]), wherein it is stated, “The CDU/detonator of the present invention is also capable of being pulsed charged from a remote source from about 1 meter to at least about 100 meters. A pulse charging time of at least one millisecond (ms) can be achieved through extended twisted pair transmission lines and/or coaxial cables. A 1-ms pulse charging time allows for the transmission inductance to be large, thus permitting long cable lengths between a charging source and a (CDU). **Detonator safety is thereby enhanced because the detonator-fire set can remain uncharged and therefore safe until at least about 1 ms before the intended firing time.**”

Further support can be found on page 10 of the specification, paragraph [00025], wherein Applicants state, “To increase reliability, the detonators of the present invention **are designed to discharge at the end of the 1-ms charging window**, such that the capacitor and switch are minimally stressed electrically due to the short time at which they see a high voltage.....”

By contrast Brooks et al (US 6,386,108 B1) instead teaches (see column 4, lines 44-53) "according to some embodiments of the invention, more energy efficient EFI circuits are used. The energy source to fire an EFI circuit according to some embodiments is provided by charging a capacitor to a lower voltage. These capacitors are charged through the electrical cable 17 over a relatively short time period (e.g., **several minutes**), from a power source located at the well surface or provided by a downhole battery (if no carrier cable 13 is not provided). The capacitors are then discharged to activate associated EFI circuits." Furthermore, Wu et al, does not disclose or suggest anywhere the charging time limitations as shown in Applicants' amended base claims 1, 8, and 14. Thus the combination of references do not provide suggestions or teachings of every limitation of Applicants base claims to warrant the rejection based on obviousness.

Accordingly, Applicants respectfully submit, that the rejection of amended base claims 1, 8, and 14 under 35 U.S.C. §103(a) is improper and should be removed.

With respect to remaining dependent claims 2, 4-9, 11-15 and 17-19, such claims depend either directly or indirectly from respective amended base claims 1, 8, or 14 and thus contain all of the limitations of the respective base claims.

Under MPEP §2143.01, "If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious." In *re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

In light of the amendments to base claims 1, 8, and 14, and based on the arguments above with respect to the rejection under 35 U.S.C. §103(a), Applicants respectfully submit the rejection under 35 U.S.C. §103(a) of dependent claims 2, 4-7, 9, 11-13, and 15-19 are also deemed improper and the rejection of such claims is requested to be removed.

CONCLUSION

The undersigned respectfully submits that the rejections of the claims raised in the Office Action dated May 01, 2006 have been fully addressed and overcome, and the present application is believed to be in condition for allowance.

It is respectfully requested that this application be reconsidered and that remaining pending claims 1-2, 4-9, 11-15, and 17-19 in this case be passed to issue. In the event that the Examiner finds any remaining impediment to the prompt allowance of these claims that can be clarified with a telephone conference, he is respectfully requested to initiate the same with the undersigned at (925) 422-3682.

Respectfully submitted,

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